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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Qing Ma

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7939

7590

07/05/2006

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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 07/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/763,779	MA ET AL.	
	Examiner	Art Unit	
	Thomas M. Dougherty	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>306, 606</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 29-31 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Barber et al. (US 6,307,447). Barber et al. show (fig. 3) and note (claim 1) a resonator comprising: an oscillator member (18) disposed upon an oscillator pedestal (10); and an ablative structure (46) positioned on the oscillator member, the ablative structure (46) being separated from the oscillator (18) by a protective pad (41).

The protective pad is made from aluminum, an aluminum alloy, silver, a silver alloy, indium, or an indium alloy. See col. 7, ll. 34-36.

The ablative structure (46) comprises a pattern of spaced-apart stacks disposed (40, 41, 44) upon the oscillator member (18). Note in claim 1 that each resonator of plurality of resonators has an ablative (etchable) layer.

Claims 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al. (US 6,307,447) further in view of Staudte (US 3,683,213). Barber et al. show a resonator system comprising: an oscillator (18) having an input (40, 44) and an output (physical vibration) and comprising: a structure (40, 41, 44, 46) positioned on the oscillator member (18); an input circuit (64) connected to the input (40, 44).

The protective pad is made from aluminum, an aluminum alloy, silver, a silver alloy, indium, or an indium alloy. See col. 7, ll. 34-36.

The ablative structure comprises a pattern of spaced-apart stacks disposed upon the oscillator member (18). This is clear from claim 1 of Barber et al. Barber et al. don't show the oscillator member suspended above a substrate by an oscillator pedestal. They don't show an output circuit connected to the output.

Staudte shows (figs. 2, 5 and 9) a microresonator system comprising: a micro-oscillator (40) having an input (24) and an output (23) and comprising: an oscillator member (40) suspended above a substrate (53), a structure (50a, 50b) positioned on the oscillator member (12); an input circuit (see fig. 9) connected to the input; and an output circuit (see figure 9) connected to the output.

Staudte doesn't show the structure (50a, 50b) being separated from the oscillator member (40) by a protective pad.

It would have been obvious to one having ordinary skill in the art to employ the protective pad of Barber et al. in the device of Staudte in order to provide for an effective means to selectively etch the etchable layers. See the ABSTRACT of Barber et al.

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Alternatively it would have been obvious to one having ordinary skill in the art to employ a cantilever type device in the structure of Barber et al., with the associated circuitry, in order to precisely control the Q factor, the frequency and temperature coefficient of the device as noted by Staudte at col. 2, lines 27-34.

Claims 32 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al. (US 6,307,447) in view of Rider (US 4,443,729). Given the invention of Barber et al. as noted above, they do not note specifically that the protective pad is made from a refractory metal, a refractory metal oxide, a refractory metal silicide, a refractory metal nitride, or combinations thereof.

Rider notes use of a refractory metal, a refractory metal oxide, a refractory metal silicide, a refractory metal nitride, or combinations thereof at col. 2, lines 35-43 in his piezoelectric device structure.

Rider does not note a resonator comprising: an oscillator member disposed upon an oscillator pedestal; and an ablative structure positioned on the oscillator member, the ablative structure being separated from the oscillator by a protective pad.

It would have been obvious to one having ordinary skill in the art to employ a protective pad made from a refractory metal, a refractory metal oxide, a refractory metal silicide, a refractory metal nitride, or combinations thereof in the device of Barber et al. at the time of that invention as such use is shown by Rider in his piezoelectric device since Rider notes that his structure has improved long-term stability at col. 1, lines 60-63.

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Additionally, it would have been obvious to one of ordinary skill in the art to employ such materials as recited above in the device of Barber et al. at the time of his invention since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Claims 33 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al. (US 6,307,447) in view of Kobayashi (US 6,049,157). Given the invention of Barber et al. as noted above, they do not note the material of their oscillator.

Kobayashi notes (see the ABSTRACT) use of an oscillator member made of a material selected from polysilicon, a metal, a metal nitride, a metal oxide, a metal silicide, or combinations thereof.

Kobayashi does not note a resonator comprising: an oscillator member disposed upon an oscillator pedestal; and an ablative structure positioned on the oscillator member, the ablative structure being separated from the oscillator by a protective pad.

It would have been obvious to one having ordinary skill in the art to employ an oscillator member made of a material selected from polysilicon, a metal, a metal nitride, a metal oxide, a metal silicide, or combinations thereof in the device of Barber et al. at the time of that invention as such use is shown by Kobayashi in his piezoelectric device since Kobayashi notes that his structure has use in oscillator devices. See col. 3, ll. 1-50.

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Additionally, it would have been obvious to one of ordinary skill in the art to employ such materials as recited above in the device of Barber et al. at the time of his invention since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Conclusion

The prior art cited reads on some aspects of the claimed invention.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

tmd
tmd

June 28, 2006

Thomas M. Dougherty
TOM DOUGHERTY
PRIMARY EXAMINER